Response to Office Action Summary

Reference: Application # 10/815,020- "Automatic background color change of a monochrome liquid crystal display".
Examiner: Mike Qi (Art Unit: 2871)
Date mailed from Patent Office: 06/15/2005

Before I go item by item let me describe briefly the inventiveness of this patent. In the recent day monochrome cell phones i.e. where the LCD employed is monochrome in nature, whenever a call comes from a party, one has to grab the cell phone if it is far away or wear a reading glass, if the eyesight is not normal, and see the 'caller ID' on the cell phone screen. The caller ID is a number with the name of the person. This invention brings a new feature to 'caller ID'. That is, if the calls are from VIPs, the background color of the cell phone screen will change. If the call is from one's wife, the color of the screen will automatically change to RED. If the call is from one's boss (excluding wife) the color of the screen will automatically change to GREEN. Hues of colors can be assigned to important numbers. Electronically what happens is the phone number of the caller automatically triggers certain pre-programmed voltage to be applied to the device and the device changes the color. To the best of my knowledge there is no such product on the market today. This invention is supposed to bring this new feature to the cell phone. The whole invention is about this inventive application and not obvious to the ones with ordinary skill in the art. If it was that obvious, for an attractive market like cell phone, the product would have been already there or plenty of patents would have been filed at this time.

Now let me go item by item to Examiner's comments.

Claim objections

1. Examiner's comment:

Claims 13, 14, 16 and 17 are objected to under 37 CFR 1.75 (c) as being in improper form because a multiple dependent claim ("multiple dependent claim") refers to more than one other claims shall refer to such other claims in the alternative only. See MPEP § 608.01(n). Claims 14 is dependent on claim 13, so that claim 14 has the deficiency ser forth above. Claim 16 recitation ".....as claimed in claims 1 through 29 and ....", but the total claims is 17 is dependent on claim 17. Accordingly, the claims 13, 14, 16 and 17 have not been further treated on merits.

My response
Yes, I agree with the Examiner that claim13 should refer to claim 9 or 10 and not both. Once claim 13 is set right, automatically claim 14 is set right. Yes, Claim 16 contains a 'typo' that refers to 29 claims whereas there are only 17 claims. This should be changed to15 instead of 29. Accordingly claim 17 should state, 'claims 1 through 16' and not 'claims 1 though 17'.

2. Examiner's quotation:

***Claim Rejections* – 35 USC § 103**

The following is a quotation of **35 USC § 103(a)** which forms the basis for all obviousness rejections set forth in this office section:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Examiner's comment:

Claims 1-3, 5 and 8 are rejected under 35 USC § 103(a) as being unpatentable over US 4,241,339 (Ushiyama) in view of US 5,693,962 (Shi et.al).

Claims 1-3, Ushiyama discloses (col.5, line 14-col.10, line 15; Fig. 3-7) that a color change liquid crystal assembly comprising:

- a first liquid crystal display cell (27) as a monochrome LCD without color filter;

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Ushiyama does not explicitly disclose that using white light emitting backlight as light source and externally connection the LCD, dichroic cell and the backlight device to their source voltage.

However, Shi discloses (col. 1, lines 28-32) that using white emitter as a backlight to generate full color has been widely used in full color liquid crystal display. As a general.....
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.....
capable to change the color display.

My response

Before responding directly to the patents referenced by the Examiner, I want to make a few comments on the interpretation of **35 USC § 103(a),** especially the lines.....*if the differences between the subject matter sought to be patented and the prior art are such that the subject as a whole would have been obvious, at the time the invention was made, to a person having ordinary skill in the art to which said subject matter pertains*.....

There are certain subject matters which can be argued to be obvious but are not obvious. Take for example, organic solar cells. When light falls on an organic solar cell, an electrical voltage is developed. There are plenty of patents granted on 'organic solar cells'... Now, some one applies for a patent on Organic Light Emitting Diode. It can be argued with the help of **35 USC § 103(a), ...**What is novel here? Invention on organic solar cell makes it clear that when light falls on an organic solar cell a voltage is generated. Conversely if a voltage is applied to an organic solar cell, light should be generated. So, organic light emitting diode as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the said subject matter pertains..... As we know today, there are hundreds of patents granted on OLED.

Here is another example. There are hundreds of patents granted on LCD. Most of the LCDs employ glass substrates.....Now some one applies for a patent on LCDs that employ plastic substrates and claims the LCD according to his/her invention is light weight (not heavy) and flexible. Once again It can be argued with the help of **35 USC § 103(a),** .....it is obvious, at the time of invention of LCD employing glass substrates was made, to a person having ordinary skill in the art to which the subject matter pertains, that plastic is lighter and flexible and hence there is nothing inventive here. .....Today hundreds of patents on flexible LCDs are granted. The reason is not what it appears to be on the surface of the subject like 'glass' and 'plastic'. The true reason is that plastic substrates have the serious problem of moisture penetration and 'birefringence'. The process steps that go in to depositing moisture barriers and fabrication methods that are employed for fabricating the plastic substrates with correct choice of materials to minimize 'birefringence' effects are significant and not obvious to persons with ordinary skill.

....Now coming to the subject proper, there are thousands of patents granted on Guest-host LCDs, TN-LCDs and OLED backlight. In our invention, we employ all three devices and invent a display assembly system that finds a novel application in cell phone. Examiner's comment is, Ushiyama discloses G-H LCD and TN-LCD combination, Shi et.al and Huang et.al discloses white OLED, what is new here? Things are obvious and Section **35 USC § 103(a),** can be applicable. Let me go through Ushiyama's invention (US Patent 4,241,339).

Ushiyama's invention:

In Ushiyama's invention, display function can not be done with TN-LCD alone. It has to be combined with G-H LCD. Note that TN-LCD does not have two traditional polarizers in Ushiyama's invention. In Fig. 3 there is only one polarizer for cell 27 and in Fig. 5 there is only one polarizer in cell 30. In our invention display function can be accomplished even without the G-H cell. G-H cell serves only for changing the background color. Further, Ushiyama's structure shown in Fig. 5 has two types of dyes in two different cells. For example dye 26 in cell 31 and dye 43 in cell 32. These dyes are oriented along the long axis of LC

molecules 25 and 42 to take advantage of the colors of these two dyes in generating a color display. In our invention, we do not have two G-H cells to take advantage of two colors of the dye. Instead we have only one G-H cell with two types of dye in them along with LC molecules to take advantage of two colors. This can be seen from our Figs. 6 &7. This concept is missing in Ushiyama's invention and is not obvious to those with ordinary skill in the art because we are dealing with a unique material property of dyes that have characteristics, based on their molecular structure. In one case of dye it absorbs the characteristic wavelength only if its long axis is along the direction of propagation of light and in the other case of dye it absorbs its characteristic wavelength only when its long axis is normal to he direction of propagation of light. Later in my response I will come to this subject of positive and negative dye in the context of examiner's comment on this subject quoting some other patent.

Novel and inventive concept of callers' phone number generating programmed voltages and these voltage controlling the G-H cell for changing the backlight color and 'hues of colors' between the two colors of dyes provided to the LCD was not there at the time the invention was made by Ushiyama because the cell phone never existed in 1978. This is the most important application value of our patent.

To summarize as to how our invention was not obvious to those with ordinary skill in the art at the time Ushiyama's invention was made, here is the tabulation.

Feature	Ushiyama's invention	Our invention
Exploiting two color advantage	Use of two G-H cell	One G-H cell
Positive dye or negative dye in as cell	Only positive dye in two different cells	Combination of positive and negative dye in one and the same cell
Color polarizing plate	Has (Fig.3) and light loss occurs due to this	No color polarizing plate and hence no light loss
Programmed voltages obtained from callers' phone number and application of these voltages to G-H cell to control the color	Not known at that time	Novel and inventive application approach to control color
Independent display function of LCD	Can not be performed. G-H cell is always necessary to accomplish display function	Even without G-H cell independent display function of LCD exists with white light from OLED backlight

Examiner's comment quoting Shi's invention:
Shi discloses (col1, lines 28 – 32) that using white emitter as a backlight to generate full color has been widely used in full color liquid crystal display. As a general available knowledge .....
.....
..... the resulting assembly would be used as color changeable backlight assembly and the dichroic cell also can be electrically controlled birefringence liquid crystal cell such as guest-host liquid crystal cell using guest-host effect as taught by Ushiyama.

My response:
In our invention we employ a monochrome LCD and hence we do not necessarily need a white light. The backlight can be orange, yellow or blue-green or mix of two colors. We took white backlight for illustration for changing the background color over wide color ranges. In fact an orange backlight should give us background color change from red to green and hues of colors in between. We can modify the claims to reflect this concept. So Shi's description of prior art using white emitter for backlighting a full color LCD is not applicable here. We employ monochrome LCD. Examiner's remark that guest-host cell is an 'electrically controlled birefringence cell' is not correct. These two cells have different operating principle and mode. Ushiyama shows a typical traditional supply voltage. This is totally different from the waveforms generated through the conversion of phone number to voltage waveforms necessary for generating 'hues of colors'. Hues of colors are generated by modulating the tilt angles of two types of dyes employed in our single dichroic cell. These voltage waveforms are specific to the cell phone application. Cell phones were not there during Ushiyama's invention.

Another general response relevant to Examiner's comment
Our invention of assembly system to obtain automatic background color change for cell phone LCD system comprises OLED backlight, LCD and G-H cell. Examiner is commenting that, on the basis of inventions made in the past on OLED backlight, LCD and LCD with G-H cell everything is obvious to a person with ordinary skill at the time of these inventions to make the assembly system we have invented because our system comprises individually the devices invented by others. Let me respond by the example of television display system. Television display system consists of LCD, backlight, display-electronics and assembly of these to form a television screen. LCD is invented by some one, backlight is invented by some one else, display electronics invented by another. Will it not be obvious to a person with ordinary skill, at the time of these inventions, to assemble these together to form a television screen? The answer is NO. This is because when these devices are assembled together there are the following problems: (1) Heat generation and dissipation problems (2) electrical noise generation problems due the interference of these devices with each other and with the components of electronics (3) flicker problems (4) color gamut problems (5) viewing angle problems. These have to be solved through

ingenious and inventive methods that may require changes to the internal structure of these individual devices. These are not obvious to those with ordinary skill at the time the inventions on these individual devices are invented.

This is precisely true in our case. We have one G-H cell that can generate two colors and hues of colors between two colors. For a cell phone application space and weight are premium and we can not afford to use two G-H cell as Ushiyama has proposed. One other aspect which is unique in our case is the integration of LCD to G-H cell. When one tries to integrate traditional color LCD used on cell phones to a G-H cell (three substrates for LCD and G-H cell together) there is a serious problem that none of the inventions quoted by the Examiner has described or even mentioned. That is, the polarizer which is an organic material will be external to LCD and will be enclosed by G-H cell, as G-H cell share the bottom substrate of LCD. Inclusion of plastic based polarizer inside G-H cell will ruin the life of G-H cell. Our invention clearly describes the choice of an internal polarizer for LCD. More on this will be added later in the correct context of Examiner's comment. Hence claims 1-3 may be allowed.

Examiner's comment on Claim 5:

Ushiyama discloses (col. 1, lines 40-66) that the display device includes the first display cell, the second cell....and the 'n' th display cell, and the liquid crystal material to the 'n' th display cell is of guest-host type (dichroic dye cell). That would be more than one of the dichroic cell so as to form the assembly.

My response:
As mentioned earlier, our G-H cell is different from Ushiyama's G-H cell due to the fact we have both the positive and negative dye molecules in one and the same cell. In fact Ushiyama's structure does not indicate negative dye molecule at all. Since our unit cell is different from Ushiyama's and functions differently compared to Ushiyama,s, our chain of 'n' cells differs from Ushiyama's. One common aspect is both are chains but with different materials and functions.

Examiner's comment on Claim# 8
Lacking limitation is such that the monochrome LCD, the dichroic cell and the backlight device are intimately placed in contact with each other. However, when assembling the system, the skilled in the art must place the number of module together such as the monochrome LCD, the dichroic cell and the backlight device are intimately placed in contact with each other. Otherwise, the system would not be assembled as a whole unitary device, and that would have been at least obvious.

My response:

As a single module comprising LCD, dichroic cell and backlight device no doubt individual devices are to be held in intimate contact. What we meant by intimate

contact is absence of air-gap between the surfaces of devices. If there are air-gaps 'Newton Rings' may be formed and 'Moir fringes' may be formed. But this is not explicitly described by the claim # 8 and this can be included.

Examiner's comment of claim#15

Ushiyama discloses (col 5, line 14- col 10, line 15; Fig. 3-7) that a color change liquid crystal assembly comprising:

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.. backlight together with through a perimeter seal to form an integrated assembly.

However Huang discloses (col 4, lines 13 – 67; Fig. 2) that a backlight device (50).....claimed in claim 15 for achieving a relatively easy and inexpensive to manufacture.

My response:

As described in my foregoing response, Ushiyama's structure does not employ traditional LCD with two polarizers. Hence integrating LCD's bottom substrate with the dichroic cell so that the non-traditional LCD and dichroic cell share one substrate is relatively simple. If the same integration is done with a traditional LCD having two polarizers, the polarizer will come in to contact with the molecules of dichroic cell which contains LC and dye. As the polarizer of a traditional LCD is plastic based, enormous amount of moisture will get in to the dichroic cell. This leads to the deterioration of the cell and short life of the cell. In this case 'hermetic seal' at the periphery has no meaning when the moisture load is from inside rather than from outside. In our invention, it can be seen under description of Fig. 9 (paragraph 0020, page 12 of the specification), we are using 'Internal polarizer' for the traditional LCD from a company called 'Optiva'. As the polarizer is internal to the LCD in our invention, integrating dichroic cell to the back of the LCD to make dichroic cell share the bottom plate of LCD, does not result in plastic based polarizer being included inside dichotic cell. Thus the deterioration in life of dichroic cell due to polarizer coming in to contact is eliminated. Internal polarizer development is recent and was not even known at the time of invention by Ushiyama and Ushiyama does not need 'internal polarizer' because his LCD is different and that is why Ushiyama's integration has no relevance to our patent. This is not something obvious to a person of ordinary skill. Hence Ushiyama's invention of his integrated structure can not be compared with our integration. Our integration is unique in that it employs 'internal polarizer' and is not obvious to a person of ordinary skill. A person of ordinary skill will not be even aware of the mechanism of life degradation of dichroic cell due to the inclusion of polarizer. Claim # 15 can be modified to include 'internal polarizer' described already under Fig. 9.

Huang et.al's invention of integrated structure is still weak and the OLED (58), that shares the substrate with LCD (60), will not work. First of all Huang et.al's invention on integrating OLED to LCD (60) is vague. Huang does not even describe anything about integrating LCD with OLED (58). Huang just puts a rectangular block, not even a cross-section of LCD, on top of OLED (58). No details and no description about integration. OLED is extremely sensitive to moisture compared to any other display device. If plastic based polarizer is included inside OLED, the OLED device will be ruined quickly due to enormous amount of moisture desorbed from polarizer and OLED will totally become inoperative. In a chain of integration if one element of the chain is weak (polarizer of LCD ruining the life of OLED) the whole chain is gone. At the time Huang's invention was made, internal polarizer was not obvious to those with ordinary skill and the integration of OLED with LCD employing 'internal polarizer' is inventive and novel and hence claim #15 is on strong footing to be allowed.

Examiner's Comment on claim # 4

Lacking limitation is such that using an electro-phoretic cell to replace the liquid crystal display.

However, Knapp discloses (col.1, lines 22-28) that other passive electro-optical media such as electro-phoretic material is used instead of the liquid crystal display element, and that is known in the art as all of them are passive electro-optical media and have similar effect.

Therefore.....in claim 4 as they have similar effect.

My response:
I do not see any connection between Knapp's invention (4,978,951) and our invention. Knapp's invention is on non-linear diode arrangement that is driving a matrix display. In his invention of 'matrix addressing elements' he is employing LCD which is invented by some one else and not by him. He mentions about electro-phoretic display as one of the display elements that can be used in place of LCD, in his description of prior art. Every invention has a different goal or object. The goal may be high efficiency of a device or system of devices, enhancement of overall performance, breakthrough designs in circuits, materials and devices, simplicity in process, assembly, ease of manufacturing, high yield in manufacturing, quality and reliability enhancement etc. To accomplish this goal well known devices can be employed in the novel system. An inventor need not invent every device he uses. For example, Knapp (4,978,951) used LCD in his invention to reach his goal of driving a matrix LCD through fault tolerant non-linear devices comprising diode elements arranged in 'ring circuit' configuration. Knapp did not invent LCD. One can not say "LCD is known at the time of invention and is obvious to those with ordinary skill to employ LCD..... ". In our invention we use dichroic cells, LCD, OLED to accomplish automatic

background color change for a monochrome cell phone screen. The end result is inventive and novel in cell phone application. Under claim 4, we state LCD can also be replaced by electro-phoretic cell and the system will function as well with electro-phoretic cell. Electro-phoretic display is known. Just because some one used electro-phoretic cell some where else does not mean our invention is obvious to those with ordinary skill at the time when electro-phoretic display was used. Knapp's invention, the examiner quoted, is a good example to illustrate my point. What if when Knapp filed his invention for a patent, an objection to his claim says, "LCD is employed in such and such invention and hence it is obvious to those with ordinary skill at the time of invention and hence your claims employing LCD is not patentable"?..... On these grounds, our claim 4 may be allowed without objection.

Examiner's comment on claim #6

The assembly is used in cell phone that is only given weight as intended use, and that would have been at least obvious.

My response:

I agree with the examiner that the assembly is mainly intended to be used in cell phone. We have adequately described this under 'description' but never claimed any where in the claim. This is a very important claim and we have to protect against patent infringement. Hence we placed this claim.

Examiner's comment on claim #7

Lacking limitation is such that the backlight device emits bands of wavelength between 400 nm and 700 nm. However Kaneko discloses (col16, lines 39-47, Fig. 14-15) that as backlight (28) to emit white light, the emission spectrum is shown by a curved line (48) in Fig. 14, the light in a wide range of wavelength from 400 nm to 700 nm emitted so as to obtain a white light emitting.....
.....claim 7 for achieving a white emitting.

My response:

Kaneko discloses two types of backlights. One is based on edge- type employing fluorescent lamp at the edge of light guide (Col. 13, line 50). Another is based on Electroluminescent (EL) lamp mixing orange, blue and green to obtain white (col. 16, lines 39-47). Ours is an OLED backlight that emits white light or any two wavelengths. That is, it can emit wavelengths between 540 nm and 700 nm or 400 nm and 550 nm. But we have covered in our claim the full range from 400 nm to 700 nm. Hundreds of inventions on displays will quote visible wavelength from backlight for the displays. Kaneko's invention is a good example to illustrate this. Kaneko discloses a fluorescent lamp based white backlight that emits these wavelengths. Fluorescent lamp is known since Second World War and its

emission of wavelength in visible spectrum (400 nm to 700 nm) is known since then. It is so obvious. EL lamp's emission of orange blue and green is known well for 25 years. Kaneko discloses this in his invention. It is so obvious. Kaneko does claim a backlight in general in his claim 12. He does not claim 400 nm to 700 nm because his main invention is not about backlight but about his novel STN - LCD which has inventive elements like the retardation film, light absorbing layer with fluorescent elements, color filters with superior transmission characteristics in the wavelength between 400 nm to 700 nm. The reason we claim the visible wavelength is because our invention is based on absorption of certain wavelength by the dye molecules of dichroic cell from the visible spectrum emitted by backlight.

It is important to recognize that there are certain common elements in the claims of every invention but those elements are used in entirely a different situation. To illustrate this, there are thousands of patents granted on LCDs and OLEDs. One can see in the claims of these patents certain common features such as ITO being used as transparent electrode, aligment layer for liquid crystal molecules, absorption type polarizer and in OLEDs, Mg:Ag, Ba, Ca, Al/LiF as cathodes, ITO, Al, Ni as anodes. These are well known in many inventions but are claimed in every individual invention. This is because the structure and the design of devices in which these materials are employed are different from the design and structure of devices in which they were originally invented. ITO as transparent conductor is known for 30 years. It is still claimed today in various inventions. Another illustration is digital timer invented 30 years ago. We see them claimed in inventions on Microwave ovens, washing machine and cooking machines. The patents are granted because the digital timer is employed in a totally different novel application, structure and environment. These claims are necessary to illustrate the significance of the features of these common elements operating in a totally new structure and also to protect the patents from infringement.

Our claim is on OLED backlight emitting 400 nm to 700 nm in an assembly structure that comprises novel dichroic cell and LCD and is employed for automatic background color change for monochrome cell phone. Hence this claim is valid and may be allowed.

Examiner's comment on claim# 9-12:

Lacking limitation is such that the dichroic cell comprises LC molecules having positive dielectric anisotropy or negative dielectric anisotropy and a combination of positive and negative dichroic molecules. However, Nito discloses (col 7, lines 53-59) that the guest-host liquid crystal..... ..... Claimed in claims 9-12 for achieving the effect of selectively control the light absorbing.

My response:

I read through Kaneko's patent US 6,504,588 B1. From col.1, line 26 to column 2, line 10 I read again to see Examiner's comment that Kaneko indicates that positive type dichroic dye molecules capable of absorbing light in alignment direction of major axes of the molecules.....I did not see the statement. (may be the Examiner means Nito's invention but stated Kaneko's invention instead). Any how that is not an important point. It has been well defined what positive dye molecules are what is negative dye molecules are. There are hundreds of patents on dichroic LCD containing these molecules. When positive dye molecule is employed in one patent that does not mean someone else can not use positive dye molecule in their novel structure and claim the positive dye molecule together with the novel structure. Plenty of patents are granted on these lines. It is most appropriate to look at our inventive and novel assembly of OLED backlight, LCD and dichroic LCD as a system for innovative and novel application for cell phone. This patent, in fact any patent of the assembly and system nature, should not be looked at in isolation with regard to the individual components stating OLED backlight is disclosed by X's invention, TN-LCD is disclosed by Y's invention, Dichroic cell is disclosed by Z's invention, dye material is disclosed by M's invention without focusing on the innovation made in individual components with regard to the structure and integration in the system as a whole to accomplish a novel and innovative application.

Nito's patent (US 6,804,037 B1):

Nito's invention is an outstanding example of what I stated in the previous paragraph. This is an invention on display/image system comprising (1) CCD camera (2) Light modulator: G-H (Dichroic) cell with polarizing plate (3) lens groups (4) Light modulation control circuit. The system is a novel system that has high luminance and contrast for images and the transmittance is controlled by an innovative pulse width control circuit. This invention should be looked at from the point of view of the whole system and not as isolated individual components. Nito is claiming Dichroic cell (GH cell) in his claim as light modulator. Dichroic cell is clearly known and disclosed by many patents 20 years prior to Nito's invention. Nito's invention should never be scrutinizes as, GH cell is well disclosed by X, Y, Z..... and is obvious to those with ordinary skill at the time of the invention of dichroic cell and hence the patentability is questionable. This is not the appropriate place to apply Section **35 USC § 103(a).**

In none of the references quoted by the Examiner, I find a dichroic cell with the combination of positive dye and negative dye, not even in Kaneko's invention. Kaneko's invention claims positive or negative dye. In our invention a single cell comprises both positive and negative dye to perform the function of providing 'hues of colors' of light to LCD. If it were not a combination of positive and negative dyes, we would require two cells and hence is the complexity. In an application like cell phone where space is a premium (thin hand-sets are preferred) one can not afford to have two cells. This is absolutely novel and inventive for this system and application.

In our patent we have explained distinctly starting from single dye to the combination of positive and negative dye in a single cell and how the single cell is able to perform the function. Things become obvious once it is explained. Now the Examiner states once the positive dye or negative dye is disclosed, a combination of positive and negative dye is obvious. I may have to repeat here what I said before ..... There are certain subject matters which can be argued to be obvious but are not obvious. Take for example, organic solar cells. When light falls on an organic solar cell, an electrical voltage is developed. There are plenty of patents granted on 'organic solar cells'... Now, some one applies for a patent on Organic Light Emitting Diode. It can be argued with the help of **35 USC § 103(a), ...**What is novel here? Invention on organic solar cell makes it clear that when light falls on an organic solar cell a voltage is generated. Conversely if a voltage is applied to an organic solar cell, light should be generated. So, organic light emitting diode as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the said subject matter pertains..... As we know today, there are thousands of patents issued on OLED and OLED is going to revolutionize flat panel displays.

Hence it would not have been obvious to those with ordinary skill at the time of invention of Kaneko that a combination of positive and negative dye can be applied to assemble a system comprising OLED backlight, LCD and Guest-host LCD for providing automatic background color change in a monochrome cell phone.

Summary of my responses:

In view of

(i) Ushiyama's dichroic cells being different from our dichroic cells, the difference being explained in the foregoing paragraphs,
(ii) TN-LCD of Ushiyama being inoperable all by itself for display function and does not involve the intricacy of integration due to one polarizer being absent
(iii) Shi's description of prior art of white emitting backlight and its necessity for full color display has no bearing on our backlight which need not be necessarily white emitter and as such none of these are obvious to those with ordinary skill at the time Ushiyama's or Shi's for reasons repeatedly explained in the foregoing paragraphs,
(iv) Huang's integration of LCD to three OLED structure being weak due to total absence of the vita linternal polarizer and Huang's OLED will not work,
(v) Knaap's invention being not connected with this invention,
(vi) Nito's invention and grant of patent to Nito substantiating strongly our invention as novel and inventive assembly comprising innovative changes and integration for a novel and inventive application

All our claims may be allowed